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ARCHITECTVRE

ENGINEERING

DECORATION

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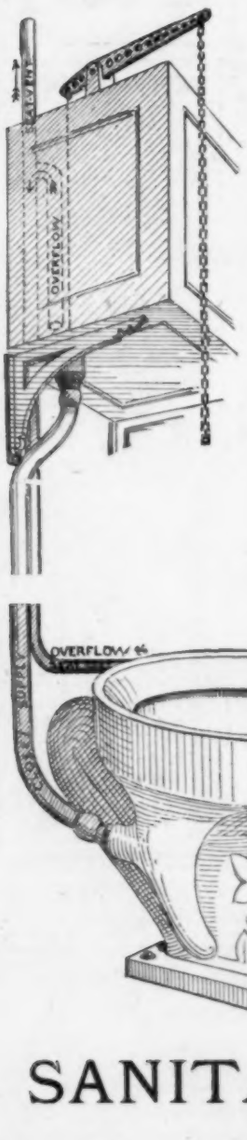
THE

SANITAS WATER CLOSET



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A VERY interesting communication is made to the *Engineering and Building Record* by a firm of architects whom the editor of the *Record* asserts to be prominent in the profession, quoting two or three forms for schedules of services which have been under consideration by the firm, and asking for advice and criticism to aid the firm in deciding which schedule to adopt definitely for its future business. As might be expected, the question of a clerk-of-works is particularly prominent in the matter, but the firm seem to be in doubt as to the best way of securing his employment. In the first schedule proposed, the charge for all new work costing more than fifty thousand dollars is fixed at five per cent on the cost, and it is stipulated that a clerk-of-works shall be employed and paid by the owner to supervise the execution of the building, under the direction of the architects. In case the owner is unwilling to employ a clerk-of-works, it is stipulated that the architects shall be considered as relieved from all responsibility for defective workmanship, unless it is clearly shown to be due to faults in their drawings, specifications or written instructions. For buildings costing less than fifty thousand dollars, and more than ten thousand dollars, the charge is eight per cent on the cost, and the architects agree to employ a clerk-of-works at their own expense, who shall visit the building at least once a day while work is in progress, and they agree to be responsible to the full amount of their commission for the conscientious execution of the work. For buildings costing less than ten thousand dollars the charge is ten per cent, and nothing is said about a clerk-of-works. In the second schedule the architects' charge is fixed at ten per cent on the cost for dwelling-houses or apartments costing less than ten thousand dollars, at a round sum of one thousand dollars for those costing between ten and sixteen and two-thirds thousand dollars, and six per cent for those costing more than the latter sum. For buildings other than dwelling-houses or apartments the charge is five per cent where the cost is over ten thousand dollars.

ARCHITECTS who practise in Boston should take notice that a new regulation went into effect there last month, by which the use of the white asbestos-covered "underwriters' wire" for conveying currents for electric-lighting in buildings is practically prohibited, the Fire Underwriters' Union refusing to insure buildings in which it is used for that purpose. As the "underwriters' wire" is much cheaper than the waterproof wire now required, the change will make an important difference in the cost of wiring buildings for electric-lighting, and architects must see that they are not imposed upon by unscrupulous contractors, who, in their anxiety to underbid each other, are very likely to try to get the architect's consent to the use of the inferior wire, which has hitherto been the one most commonly employed, and will lay the blame upon him when the underwriters refuse to accept it, and the whole has to be torn out and done over again.

SOME of our readers may remember a description of a building with a tower five hundred and twenty feet high, or something of the kind, which was, according to the daily papers, about to be erected in Brooklyn, N. Y., for an institution which was to undertake the uniform training of young clergymen of all denominations, upon some system which was not explained, but which included the examination of the stars through a telescope to be mounted in the tower. The name of the institution which had undertaken this rather delicate business was said to be the Biblicon, and large sums of money were reported to have been subscribed to support it. A picture of the Biblicon building was even published in some of the papers, which showed the hand of a tolerably practised designer. From the more recent accounts, derived from the records of the police courts, it seems that the "Biblicon" enterprise was simply a cover for a peculiarly mean swindle, concocted by an architect of a species which, we imagine, contains but one specimen. It seems that the youth in question, after his pretended "Biblicon" building had been sufficiently advertised in the newspapers, invited estimates for it from mechanics of different kinds. One of these, who told his story afterwards in court, said that he was invited to call at a certain office in New York and estimate on the mason-work of the building. He did so, and came to the conclusion that it would cost about one million two hundred and eighteen thousand dollars. He told the architect, who obligingly said that he was afraid he would lose money on it at that price, and advised him to add fifty thousand dollars to his bid, which he did. If the contractor had been better informed in regard to professional ethics, he would have fled from an architect who so far forgot himself as to make such suggestions to him, and would thus have been saved the unpleasant experience which followed; but, like the other people who think that a man who is false to those who trust him will be true to them, he swallowed the bait at once when he was notified that his bid had been accepted, and went to see the architect about signing the contract. The little drama which ensued may be easily divined. After some agreeable conversation the architect mentioned that he was temporarily short of cash, and would be much obliged for a loan of five hundred dollars. The mason had, unfortunately, only two hundred dollars with him, but the architect said that this would do, and took it, giving in return a note, payable in three months. At the end of the three months the note, which had passed into other hands, was protested, and the mason hurried to the architect for an explanation. He was told that the note had matured unexpectedly, but that if he would call again in a few days it should all be settled. As he had already made a contract for forty million bricks for his work, he could not feel quite easy until the little affair with the architect had been adjusted, and called again at the appointed time, only to find that the office was closed, and its occupant had disappeared. Upon this he concluded that it would be prudent to make some inquiries for himself about the building which he was to have so large a part in erecting, and went to Brooklyn, where he found that no plans for such a structure had been presented for approval at the office of the Inspector of Buildings, and, as we understand, that the site of the proposed institution intercepted a public street. Convinced that he had been defrauded, he set out again to find the architect, and, after a long search, discovered him in an office in New York, and had him arrested. Supposing the mason's story to be true, it would be a curious inquiry whether he might not be debarred from obtaining legal redress against the architect, through the questionable nature of the transaction by which he, in collusion with the architect, added fifty thousand dollars to his bid. A man who enters into a conspiracy with another to betray a trust cannot invoke the aid of the courts to make his companion in crime keep his promises; and, although the lending of the money to the architect was not directly connected with the raising of the bid, it was probably understood by both parties as a return for the architect's amiability in suggesting the raising, so that we doubt whether the interests

of morality and public policy very strongly demand its restitution.

THE International Congress of Architects, which we hope some of our readers may be able to attend, will open in the hall of the Trocadéro Palace in Paris, on the seventeenth of June next. The business of the Congress, after the opening addresses, will be divided among committees and sections designated for the purpose, and the ensuing meetings, except the last, will be held in the great lecture-room of the Ecole des Beaux-Arts, called the Hall of the Hémicycle, from the noble fresco of Paul Delaroche which adorns its semicircular wall; some of the sections being also furnished with consultation-rooms in the building of the Sociétés Savantes, in the Rue Serpente. The final meeting will again be held in the Trocadéro, on Saturday, June 22, and the same evening a fraternal banquet will take place at the Hôtel Continental. Any architect may join in the Congress by sending his name previously to the Committee of Organization, or by applying to the Committee on his arrival, and paying a contribution of five dollars, or, if he wishes, of twenty dollars, in consideration of which his name will appear in the printed account of the Proceedings among those of the "Membres Donateurs." Each member properly registered will receive a card of admission, a bronze commemorative medal, and the printed report of the Proceedings. Any French or foreign association of architects may subscribe, either as an ordinary member of the Congress or a Membre Donateur, and will then be entitled to participate, in the person of a delegate, in the privileges of the Congress. Those members who may wish to address any communication to the Congress, upon the subjects mentioned in the programme, which we have already published, or on any other matter of professional interest, must send notice, with a copy, or at least an abstract of their communication, to the Committee on Organization. If the subject to be treated is one of those mentioned in the programme, the abstract must be received by the thirty-first of March. If it is something not included in the programme, it may be presented at any time before the fifteenth of May.

WE imagine that a good many people will be surprised to learn the comparative importance of the exhibits to be shown at the Paris Exhibition, at least as indicated by the energy with which the governments of the countries from which they come have taken part in the matter. To begin with our own country, the exhibits from the United States will occupy an area of about eighty thousand square feet, which will be mostly devoted to private contributors; but the Government has appropriated two hundred and twenty-five thousand dollars, and will make some sort of official exhibit. Our little neighbor, Mexico, has officially appropriated four hundred and fifty thousand dollars, and has a large building of its own, in which will be shown the productions of what most of us imagine to be a nation of priest-ridden Indians. The Argentine Republic, which many Americans, we venture to say, confound with Patagonia, has appropriated six hundred and forty thousand dollars, and will fill a space of sixteen thousand square feet with objects which will not consist exclusively of the hides and horns of wild cattle. Siam is to have twenty-five hundred square feet for its official exhibition, and private Chinese merchants have engaged about three thousand. Japan is to have a splendid agricultural exhibit, besides a larger one of manufactured articles than it had in 1878. Portugal and Austria will each occupy about the same space as Japan, and Monaco, Andorra, and San Marino will be represented. England is naturally to furnish a large part of the foreign manufactures. Two hundred and fifty thousand square feet were originally appropriated to its exhibit, but the space was almost immediately taken up, and for a long time the English Commissioners have had to refuse contributions for want of a place to put them. The price of admission has been fixed by the Committee on Finance at two francs for the "hours of study," from eight to ten in the morning; one franc for the hours between ten in the morning and six in the evening; and two francs for the evening. Season-tickets, good for six months, will be twenty dollars.

THE French Academy of Medicine has recently been entertained by a long and serious protest, written by one of its members, against the employment in dwelling-houses of the so-called "movable stoves," which have a certain connection with the chimney, by means of a flexible smoke-pipe, but are liable to leak carbonic-oxide gas. Every one knows the poisonous effects of carbonic oxide, but the introduction of the movable stove has brought them more prominently into notice, by the number of deaths which have already occurred through the use of them. It seems that poisoning by means of these or any other sort of leaky stove may be either rapid or chronic. In cases where the amount of gas inhaled is small, but the dose is often repeated, the patient suffers from loss of appetite, occasional vertigo, and violent headaches, and seems to fail in strength, from no very obvious cause. Where the amount of gas inhaled is considerable the sufferer becomes dizzy, then unconscious; the brain is directly affected, and with it the main nervous centres, and death speedily results. If the dose has not been large enough to produce death, the patient lingers through a long and painful convalescence, the effect of the poison on the blood disappearing only by slow degrees. Among us, the movable stove has as yet hardly made its appearance, but we have an apparatus of very similar character, in the shape of the gas stove, whose merits and demerits greatly need investigation at the hands of experts. It may be that the gas-stove, as ordinarily employed, with its outlet pipe pouring all the products of combustion into the room in which it is placed, is an innocent affair, but we should like to have it proved, and if it is not proved, we should like to have the public warned against its use.

SOME remarkable stories are told of a new steam-turbine, which has come into rather extensive use for driving dynamo-electric machines in England. The inventor is Mr. Parsons, who, we suppose, must be the same with the inventor of the engine with four cylinders, revolving with the shaft, which we described some years ago. If it be the same, his subsequent researches seem to have taken the direction of the application of steam directly to fixed wings on the shaft, instead of using the indirect system of cylinders and pistons. As the water-turbine is the most efficient means of utilizing a natural force yet known, it is not strange that many efforts have been made to apply the same principle to steam-motors, but they have hitherto met with little success. Mr. Parsons, however, has avoided the defects of other machines, and has introduced some important improvements. The best of these is perhaps the adaptation of the compound system, each of the more powerful turbine machines securing triple expansion, by using three turbines, in series, the steam expanding from each into the next, while the surfaces are so arranged as to give nearly equal power to each. Moreover, instead of expanding from a certain fixed pressure to another fixed pressure, the wings of the turbines are themselves arranged expansively, so that the pressure of the steam diminishes gradually from its entrance into the machine to the exhaust. Through this graduation of the pressure, supplemented by an ingenious system of journals, the movement of the engine is made extremely smooth and uniform, even at enormous speeds. In the recent exhibition at Manchester a motor of this kind, connected with a dynamo, was suspended by two wires from the ceiling. There was no swinging or vibration of any kind, and the machine appeared to be quiescent, yet it supplied current for all the incandescent lamps in the machinery hall. The rapidity with which the new engine can be run is almost incredible. The earlier Parsons engine made twelve thousand revolutions a minute, which was considered a very high speed; but the first steam-turbine which succeeded it has been furnishing six horse-power, at the rate of eighteen thousand revolutions per minute, almost continually for four years, and is still in excellent condition. How a machine is held together at such speeds it is difficult to imagine. A few days ago a dynamo in the basement of a store in Chicago, running at the rate of only thirteen hundred revolutions a minute, burst by its own centrifugal force, the engineer being seriously hurt by the flying fragments; and a similar apparatus, revolving three hundred times in a second, would appear to be a dangerous neighbor. This view of the matter, however, does not seem to trouble the expert editor of the *Revue Industrielle*, who is so much pleased with the new device that he intentionally gives the account of it the place of honor at the head of the first number of the volume for 1889, which, as he says, will probably contain descriptions of an unusual number of interesting mechanical devices.

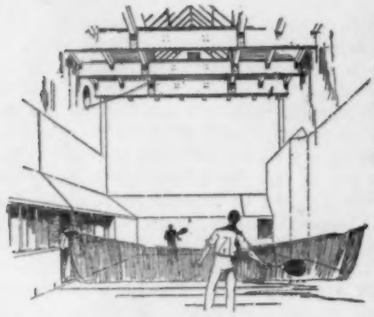
THE people who talk about the "intellectual purity of appearance" of the marble temples of Greece would do well to read the discussion now going on in *L'Architecture* on the antique polychromy, between M. E. Loviot and M. Pottier. Both these gentlemen are experts in archæology and architecture, both have directed archæological explorations in Greece, and the main point of difference between them appears to be, not whether the Greeks applied paint to portions of their temples, but whether they ever left any part of them unpainted; M. Pottier doubting whether they painted the outside steps, while M. Loviot, who himself found the floor of the temple of Jupiter Panhellenius at Egina, when excavated in 1878, covered with stucco and painted red, believes that if they disliked the appearance of a bare marble floor they would not stop at the steps, but would cover them, as appearances still remaining indicate that they did, with color similar to that of the pavement. In fact, his long experience leads him to the conclusion that in the Greek temples, whether of marble or coarser stone, no white was ever left visible, in any part of the building, either inside or outside, except where touches of white pigment were used to accentuate small ornament, or in decorative patterns.

THE woes of architects continue to occupy a considerable space in the foreign technical papers, as well as in our own. M. Bérard, one of the fraternity, writes to *La Semaine des Constructeurs*, as only a clever Frenchman can write, giving a list of the virtues, accomplishments and duties expected of a French architect, and comparing it with the remuneration that he receives in return for them, which will excite the sympathy of the profession everywhere. The principal works, it seems, that a Parisian architect is expected to perform with cheerful alacrity, and with perfect skill and success, are, in the order in which they generally present themselves to him, about as follows: Measurements and plans of large lots, for the purpose of sketching subdivisions and the laying-out of streets; measurements and plans of small lots, for the purpose of laying-out schemes for building; measurements and plans of quarries or other subterraneous circumstances; measurements and plans of existing buildings; examination of deeds and titles; preparation of sketches, studies, working plans, elevations, sections, details, specifications, estimates, contracts and sub-contracts; negotiations with inspectors of buildings, police officials, superintendents of sewers, city engineers, street commissioners and other public officers, to obtain the necessary permits to carry out the work; calculations of the strength of beams, walls and piers, columns, trusses and ties; supervision of the work during its execution, with the regulation of extras, examination of accounts and certification for payments; arbitration in case of dispute; assistance in case of suits before courts or referees; management of funds held in trust for the purpose of carrying out the building; purchase of land, buildings or materials; preparation of schemes for the financial management of building enterprises, this work involving a knowledge of the money market, acquaintance with banking methods, and a knowledge of the fluctuating values of real-estate and building materials and labor; negotiations in regard to party-walls; and assistance in fixing rents, arranging for repairs and estimating losses in case of fire. It will be observed that this catalogue, which says nothing about prescribing medicine for his client's horse, or offering suggestions in regard to agriculture, would be very imperfect for an American architect, but even so limited a list seems to M. Bérard to imply on the architect's part an amount of intelligence, knowledge and activity far surpassing the ordinary capacity of the human intellect. To carry out such duties in the manner which laymen generally expect, and New York judges require, the architect must be not merely a man of science, of profound reading and immense experience, but he must be also a lawyer, a business man, a financier, a real-estate agent, a conveyancer and a civil engineer, to say nothing of the moral virtues of honesty, energy and courage, which he must possess for performing his duties, not only of certifying builders' accounts, but of climbing over roofs, and descending into the drains, wells and other objectionable places which he is called upon to visit.

IN return for the display of all these virtues and accomplishments, one would expect to see the architect receive a princely remuneration, which would be guaranteed to him by the unanimous consent of mankind. In France, however, as M. Bérard says, we find, instead of this, the architect placed practically at the mercy of any one who has the heart to try to plunder him. After his work is done, if his client chooses not to pay him, he has nothing for it but to wait, two, three, five or ten years, until his debtor experiences a change of heart, or some "compromise" is made, by which he submits to be robbed of a part of the money that is due him, for the sake of getting the rest. If this course does not suit him, he has the option of appealing to the courts, where, after distributing fees and dancing attendance upon lawyers, witnesses and judges for two or three years, he has at last the advantage of being exposed for a season to the assaults of what M. Bérard calls his worst enemy, the professional expert, from whose artfully directed blows he may, if he is fortunate, escape without adding a second loss to that which he has already sustained, but can hardly hope for anything more. Outside of these two alternatives, he has no resource whatever, or rather, as the editor of *La Semaine* interpolates, had none until the Architects' Protective Association was formed; for he alone, of all business men, is denied the right to cite customs and tariffs in opposition to the whims of judges and jury.

THE New York *Tribune* has found an architect in this country, more discontented, if possible, than M. Bérard. According to this gentleman, it is useless for any one who has not a large capital, or at least "extensive social affiliations," to attempt to be an architect. If a person not endowed with these requisities enters the profession, he is very likely to spend the rest of his life as a draughtsman in offices, on a small salary, which he has to compete for with cheap foreign draughtsmen; or if he should be so fortunate as to get a little business for himself, he is almost sure to be cheated in some way out of the pay for it. The "trickery and deceit" which, judging from his experience, architects have to encounter, would surprise ordinary people. For example, he had himself been asked, a few days before, by a "down-town merchant," to furnish sketches for a house, the sketches to be paid for only if accepted. He made the sketches, which were rejected, but not until the merchant had had time to steal tracings of them, and he had since learned that ground had been broken for the house, which was to be carried out substantially in accordance with his design. So far as he could see, he had no redress for this barefaced fraud. In another case that he knew of, a wealthy real-estate owner, proposing to erect an office-building in the city, sent out circulars to architects, inviting them to submit full plans and specifications for it, and promising to pay a handsome sum for the ones accepted. The plans were sent in, and after examination, were all returned to their authors as "unsuitable." Meanwhile, however, they had all been traced by a clever, but dissipated draughtsman, whom the proprietor had picked up somewhere, and the same artist afterwards combined the designs into a conglomerate structure, which stands at this day in the lower part of New York, as an example of mercantile acuteness, and, we might add, of the folly of architects. It does not require a very discerning mind to perceive that if the architects in question had simply shown ordinary prudence, in declining to do any work "on approval," or, if they wished to enter into competition, in waiting until they were offered proper terms, they would not now be suffering from the feeling of having thrown their time and money away for nothing, or from that sharper sting, the consciousness of having made themselves ridiculous in the eyes of their deceiver and his friends, by their childish credulity and lack of commonsense. A person who allows himself to be deluded by such proposals may, perhaps, deserve the pity of the humane, but he merits no sympathy or consideration from architects, whose good name he degrades by his folly, while he seriously injures their business by his idiotic competition for work which either he or they might do at a fair price, if he were not always ready to be deluded, on the most transparent pretenses, into doing it for nothing. In the cases, which are quite common enough, where architects are really misled by false promises, or cheated out of their earnings, some means of securing justice quickly and cheaply is greatly needed, and we hope that the reorganized American Institute, of which, by the way, we hear nothing, will address itself in earnest to the question; but people who wish the profession to help them out of their troubles should deserve that favor, not only by loyalty to professional principles, but by showing, in their transactions, a decent amount of prudence and self-respect.

THE BOSTON ATHLETIC ASSOCIATION'S BUILDING.



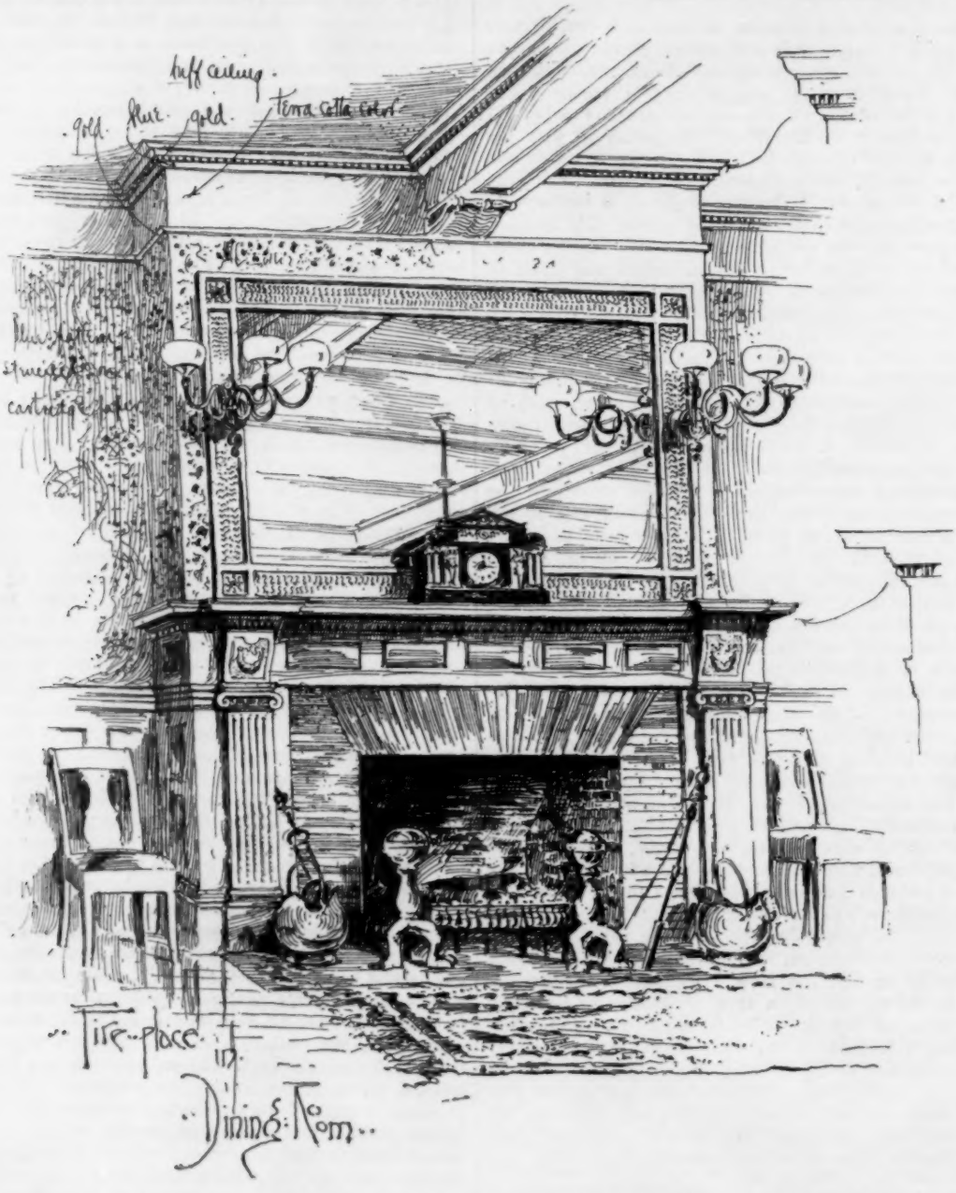
The Tennis-Court.

NO new building in Boston has attracted so much attention as that recently opened by the Boston Athletic Association, on Exeter Street, and certainly no one reflects more credit on its architects and the building-committee, who, in place of being troublesome and practically useless coadjutors, could in this case hardly have been dispensed with, for the requirements which the architects were called upon to satisfy were of a kind that any ordinary architectural training threw no light on, and there were few precedents that could be consulted.

The movement began with a few men who had always taken an interest in outdoor sports, who found that when the open season closed there were practically no means at hand for keeping up that bodily condition which, when once enjoyed, one is willing to do so much to preserve. To be sure, there was a tennis-court here, a gymnasium there, a bath yonder, billiard-rooms in all the club-houses and restaurants everywhere, but all were more or less widely scattered, all subject to separate membership fees and rules, and all more or less unsatisfactory for one reason or another.

A few preliminary meetings made it clear that the movement could have support; the association was incorporated, bonds issued and taken up by interested members who had capital they were willing to invest in this way. This first step taken and a site secured; the next was to procure the necessary plans, and few will deny that a very satisfactory result has been achieved. The fact that some of the rooms are a size too small is a misfortune attendant on the inability to procure a larger lot. Excellent advantage has been taken of the space available, and in compactness, distribution and convenience it is an interesting model to be consulted by those who may have similar buildings to erect in other cities.

From the very start success has been a certainty, and it has been owing to the central idea of uniting under one roof the elements of a social club and an athletic association, since it secured the support and countenance of elder men — the more opulent relations of the younger athletes — who would hardly have thought it worth while to subscribe to the support of a mere gymnasium which they were likely to use but rarely, partly through indolence, and partly through an unwillingness to show their younger fellows how years and disuse had softened their tissues and taken from the former manly grace of figure they once so highly esteemed. But thanks to the commingling of the provisions for social and athletic enjoyment these athletes of a former day do not find themselves out-of-place here, and under the pretense of a lounge can get actual profit from their membership by taking such casual exercise as their years and inclination may permit, without feeling obliged to take up the systematic and regular course of



exercise that membership at an ordinary gymnasium would naturally urge on the really unwilling man of years. A half-hour at the weights in a place like this, with a pleasant dining-room below and ample lounging-rooms and good company around, is a vastly more agreeable thing to contemplate than the same time spent in a bare and ill-smelling gymnasium, when it has to be followed by a chilly walk home, or a still more dangerous ride on the horse-cars. The force of servants and superintendents, and it has wisely been decided to make it practically self-supporting by charging fees for the use of bowling-alley, tennis-court, billiard-tables, Turkish-baths and so on, while the gymnasium proper is free to all. It is here that one whose memories of gymnastic apparatus go back twenty or thirty years to the little, old gymnasium at Harvard opens his eyes and goes about with a mien of respectful inquiry, trying to discover the

Fireplace in the Billiard-room.

real element of success lies just here, and whoever originated the idea of such combination, should be considered the founder of the club.

Although opened only a few weeks ago, it is already the most popular resort in the city — so popular, in fact, that the older clubs which are merely social in character, already feel that the current of favor is setting away from them, and foresee a possibility that their past prosperous financial condition may, in time, be impaired through the greater attractions offered by the new club which already has a waiting-list of several hundred; although, since the opening, the membership has been increased beyond the limit originally fixed.

The plans and illustrations published herewith practically give all the information that can be given, but they can give but an imperfect idea of the homely and homelike air that pervades the building, so different from that which oppresses one in so many club-houses where

A Corner of the Billiard-room.

the first — or a main — intent is a showiness, or, at least, elaboration of architectural and decorative features, which makes one feel as if he ought to appear there only in full evening dress.

The membership of the club is so large that it will evidently be easy to provide for the interest on the bonds and the needful sinking-fund. But so large and complex an establishment requires a large whys and wherefores of the intricate apparatus whose very neatness and perfection of workmanship is, at once, an invitation to strip and go to work, and an irritation, as one feels aggravated that these things were not invented two or three decades ago. Clubs and bars and rings can be recognized, but this great array of lifting-weights of different models need explanation, accompanied with demonstration, before it is possible to understand their uses or conceive what set of muscles they are to develop. Many of these are due to the ingenuity of Dr. Sargent, the Superintendent of the Hemenway Gymnasium, at Cambridge, and give evidence of the wisdom of employing in that position a man of intelligence and education, rather than the retired "bruiser," as in the olden time.

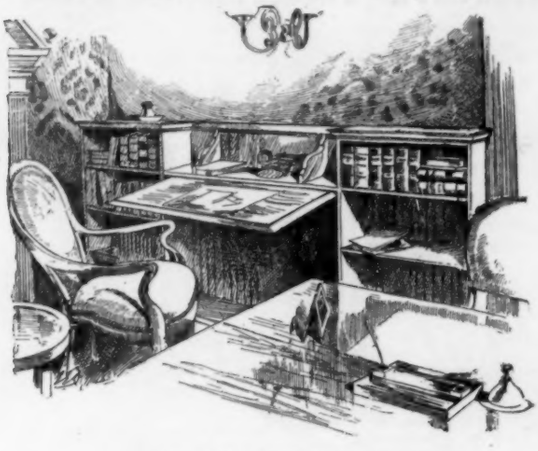
In regard to the plan and arrangement of the building, we are obliged to begin contrary to custom, at the top. The tennis and racquet courts being of fixed dimensions regulated the main partition-

Buffet in the Dining-room.

walls and even the length of the building which just accomodates the tennis court. The building is then divided into three main divisions, one the width of the tennis-court, one the width of the racquet-court, and the third the space left between when these two are taken out. The gymnasium, occupies all the space under the tennis-court and this central section, and we find that there is now only one portion of the building which being unoccupied from top to bottom is suitable for a staircase, viz., the space left at the end of the racquet-court, and

here the main one must be. Room is found for the second by taking out a corner of the gymnasium proper and this is of iron, in a brick-well. So much for the skeleton arrangement; the various floor plans show the result.

We enter on a level from the street on what is practically a mezzanine floor. One flight down carries us to the Turkish baths,



Wall Desk in the Writing-room.

with the tank and lounging-room for the bathers and spectators and a flight up takes us to the main social floor; while on the level are the private bowling alleys, which being for ladies' use as well as members', are directly at the entrance, the storage-room for cycles, and the barber's shop.

In all the decoration of the building economy and durability have been the first considerations. In view of the experimental character of the undertaking, the first was a necessity and the latter almost equally so for a club which the founders intended to be permanent.

Exit from Reception-room to Stairway.

In the basement then we find extreme simplicity, the walls of the lounging-room and tank of Massachusetts brick are all exposed and the only decoration permitted is a stencilling of strong green over the upper part of the lounging-room walls, which especially at night is very effective. Five great arches divide this room from the tank, 25′ x 39′ and holding some 60,000 gallons. Below the water-line this is built of glazed brick, the upper six courses light green and the bottom the same, while the remainder is white. A graded platform at one end gives any required height for a dive, and a spring-board at the other end gives opportunity for running-dives and somersaults. At the same end a platform under water makes a shoal space 8 feet x 25 for the use of the inexperienced and the children of members, who can here have lessons at stated hours. The water is filtered through a large Oliphant filter which makes the otherwise yellow water of Cochituate clear and colorless, and by the aid of steam-pipes laid about the bottom of the tank is to be kept at a temperature of about 65° to 70° Fahrenheit.

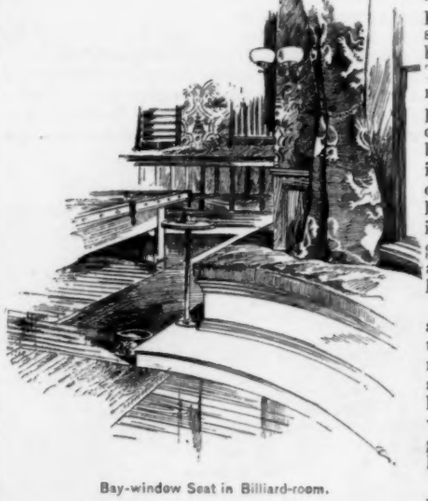
Fireplace in the Morning-room.

The Turkish-baths proper, following a not unusual plan in the East, are clustered around one central room which is covered by a dome. The four openings are Moorish arches in green, brown and white glazed brick and the walls up to the springs of these arches are of the same material. Above, and up to the spring of the dome a Persian pattern in blue and green is stencilled on the rough plaster, and the dome is relieved by medallions of color, and circular windows filled with stained-glass.

The rooms surrounding are low studded (the half-story only) and are, a room at 140°–150° Fahrenheit, a room at 160°–170° Fahrenheit, a steam-room or Russian-bath, with shower, and a room for massage and the shampoo. Having finished in this last room, the bold bather takes a cold shower and then plunges into the big tank, while the one who fears the shock returns as he came. Before dressing he can receive a rub down with alcohol, which will prevent his catching cold and will act like a cocktail before dinner.

A Bit of the Dining-room.

On the social floor we find the usual club-rooms, with the exception of card-rooms and private dining-rooms—there being absolutely no space for these. What rooms there are, are large: the dining-room seats 85, the billiard-room gives very ample room for 6 tables and could accomodate 8, and the drawing-room, morning-room and library will easily accomodate those who are resting from their exercise or are too lazy to participate in the sports which the building affords. The three last-named rooms are papered in quiet colors, light red being the prevailing tone in the drawing-room, yellow in the morning-room, and dark green with oak and gold in the library.



Bay-window Seat in Billiard-room.

The furniture is all in keeping with the size of the rooms, and is massive oak or mahogany, covered with soft, red, green, or russet leathers.

The billiard-room, which is in oak, has seats all around and the walls covered with buckram, which, on the natural ground, is stencilled with a good mediæval pattern in golden browns, harmonizing with the oak and the buff tones of the beamed-ceiling. This latter is of stucco, and covers the great girders, some of which weigh over seven tons, and which span nearly 40 feet, carrying the gymnasium floor.

The dining-room is in cherry, natural color, as it is the dark room of the building, and the walls are stencilled in green, on a light yellow cartridge paper. Two dumb-waiters run 70′ up to the kitchen floor, and the *table d'hote* meals are served from a hot-table in the china-closet.

On the second floor, and the mezzanine on a level with the running-track, are the gymnasium and all its baths and dressing-rooms. A special effort has been made to make both these latter as convenient and complete as possible. The members, instead of owning large lockers where they hang their own clothes to be aired or dried as they may, have merely small cupboards, only large enough to receive their clothes when folded. An attendant receives the exercising clothes when taken off, and carries them to a large well-ventilated drying-room, kept at a temperature of 90°. When dry and aired, he folds them and places them in the lockers ready for use. The dressing-rooms accommodate two each, and there the clothes are hung up while exercising; all valuables having been left at the gymnasium office. Besides bath-tubs and bowls, there are a number of private shower bath-rooms where the bather may take a shower or a douche of any required temperature, or he may go to the general shower bath-rooms and there receive the benefit of more complicated showers.

On the third floor are the two large courts, which, as they are the same as all other racquet and tennis courts, needs no especial description. The walls of one are of Keene cement, colored red, and of the other, Portland cement painted black, and the floors are an inch of Portland cement, on 4 inches of concrete, on hard-pine planking, which is exposed below as the gymnasium ceiling. They are lighted by skylights half the width of the court, and running nearly the whole length.

The outside speaks for itself. It is of simplest materials, Massachusetts brick, with a sparing use of Anderson pressed-brick, as economy was the one ruling force with the architects. The large spaces to be spanned and the heavy floors of the courts made it necessary to use heavy box-girders which added considerably to the difficulties of the construction, as they tended to centralize weight at certain points.

THE ILLUSTRATIONS

[*Contributors are requested to send with their drawings full and adequate descriptions of the buildings, including a statement of cost.*]

THE BOSTON ATHLETIC ASSOCIATION BUILDING — THE GYMNASIUM, BOSTON, MASS. MR. J. H. STURGIS [STURGIS & CABOT, SUCCESSORS], ARCHITECT, BOSTON, MASS.

[Gelatine Print, issued only with the Imperial Edition.]

THE BILLIARD-ROOM IN THE SAME BUILDING.

[Gelatine Print, issued only with the Imperial Edition.]

BUILDING OF THE BOSTON ATHLETIC ASSOCIATION, BOSTON, MASS. MR. J. H. STURGIS [STURGIS & CABOT, SUCCESSORS], ARCHITECT, BOSTON, MASS.

FOR description see elsewhere in this issue.

TURKISH BATH AND SWIMMING-TANK OF THE BOSTON ATHLETIC ASSOCIATION.

PLANS OF THE BUILDING OF THE BOSTON ATHLETIC ASSOCIATION.

SKETCH FOR COUNTRY CHURCH, CHAPEL AND PARSONAGE, MONTCLAIR, N. J. MR. R. H. ROBERTSON, ARCHITECT, NEW YORK, N. Y.

INTERNATIONAL CONGRESS OF APPLIED MECHANICS. — There will be held at Paris at the Conservatoire des Arts et Métiers, an International Congress of Applied Mechanics, under the patronage of a Committee of Honor, comprising *savants* and engineers of renown both from France and from other countries, who will give the work of the Congress the benefit of their influence and the weight of their authority. The President of the Committee on Organization is Monsieur Phillips, ex-Inspector-General of Mines (retired). The five members appointed from the United States are, in the order of their mention on the official bulletin: Messrs. Robert Grimshaw, (President Polytechnic Section American Institute, New York); R. H. Thurston, (Director, Sibley College of Cornell University, Ithaca); Professor Egleston, (Columbia College School of Mines, New York); and the Presidents of the American Societies of Civil and of Mechanical Engineers. At this Congress, among the important subjects submitted for discussion are: the unification of the horse-power; the choice of materials in machine construction; the mechanical production and utilization of artificial cold; transmission to a distance, and distribution, of work, by other means than electricity, (water, air, steam, cables, etc.); automatic cut-off engines with several successive cylinders; thermo-motors other than the steam-engine. Other topics, treated by papers, will be: improvements in steam-engines since 1878; progress among associations of owners of steam appliances; and improvements in apparatus for the generation of steam, (more particularly sectional boilers).

AMONG THE CAPITALS OF ITALY.[1]

Fig. 1. From the Baths of Caracalla.

THERE is not in the whole range of architecture a more delightful section of study than the one having to do with the evolution of the capital. To trace the growth of that chief of ornaments from the time when our savage forefathers bound a cluster of leaves around the summit of the forest column, to the days when cultured Phidias embellished the Parthenon with his inimitable work, is interesting enough; but to follow its course through the fascinating era of the Italian Renaissance reveals a history which is hardly short of romantic. On the glorification of the capital the ornamentist has bestowed the very flower of his thought, the sculptor the most cunning efforts of his chisel, and even the poet has delighted to hang a few garlands on its volutes. In the days of the old Greeks, its lines, when once evolved by a "master," were looked upon with such veneration that they became as the laws of the Medes and Persians. A definite form of capital was associated with a particular epoch, and to amend or alter it, when used in that association, was considered little short of sacrilege. Even now, after centuries of research, it must be confessed that it is difficult, if indeed possible, to improve upon the capitals devised by the old Grecian architects; for over two thousand years of usage have not succeeded in rendering them at all stale and unprofitable. Phidias and his immediate successors were the artificers who, above all others, succeeded in handing down to posterity what Lord Macaulay calls

> "The stone that breathes and struggles,
> The brass that seems to speak;
> Such cunning they who dwell on high
> Have given to the Greek."

Having hung my chaplet of praise on the capitals of Old Athens, I shall proceed to do what may appear to be inconsistent with that votarial offering; for, paradoxical as it may seem, the main object of

Fig. 2. From the Cathedral at Prato.

these notes — which are the outcome of a personal sketching tour in Italy — is to show that, while the spirit of classic originals can be retained, detail may be infinitely varied, greatly to the benefit of the capital itself, and therefore of architecture and woodwork generally. This statement of purpose will at once suggest that the ruins of the Renaissance form the happy hunting-ground from which I captured the specimens adorning these pages, the most notable of which may be attributed to *la bella Firenze*. But before sporting on the banks of the Arno, I propose to pause for a moment by the Tiber, in just about the spot where Walter de Montreal stood when he gazed on Rome. "Though little skilled in the classic memories and associations of the spot, he could not," says Lord Lytton, "but be impressed

[1] By J. William Benn, Member of the London County Council.

with the surrounding witnesses of a departed empire; the vast skeletons, as it were, of the dead giantess. Now, thought he, as he gazed around upon the roofless columns and shattered walls everywhere visible, over which the starlight shone ghastly and transparent, backed by the frowning and embattled fortresses of Frangipani, half-hid by the dark foliage that sprung up amidst the very fanes and palaces of old — Nature exulting over the frailer art; now, thought he, bookmen would be inspired by the scene with fantastic and dreamy visions of the past. But to me these monuments of high ambition and royal splendor create only images of the future."

In that last phrase we get the *motif* of these notes. "These monuments" are expressly set out here in the hope that they may "create only images of the future," not only in the matter of capitals, but in a hundred other ways. Some architects and designers may be shocked at the statement; but I venture to assert that the majority of modern capitals are monstrous pieces of plagiarism, and the advent of a new composition of any merit is as rare as the dodo. How does this sameness come about? Just in this way: if a capital is wanted, the timid architect or designer hesitates to employ any other than academical examples, and so we get well-known types repeated *ad nauseam*. Some of my purist readers may retort, "Is it not better to follow recognized and respected models, than to run the risk of failure by rummaging in fresh fields and pastures new?" Perhaps it is for the man who is content to remain on the bottom rung of his profession and suffer

splendid mosaics. What a scene to behold; these works of art intermingled with 1,600 bathers! A comparison of the present ruins with what we know must have been the original structure covering thirty thousand square yards, is enough to cause one "to sigh like a schoolboy," as Shakespeare puts it. To notice that such precious relics as the one which is here sketched have been carried piecemeal-fashion to every quarter of Rome, and, indeed, Europe, provokes the exclamation of Mark Antony: "What a fall was there, my countrymen!" This superb capital is reverently sketched just as it is, broken and disfigured, without attempting to restore or imagine any of the missing parts. It no longer surmounts one of the grand columns of the Thermæ, but, when I saw it, was propped up on some lowly brickwork. One of the saddest things about visiting Rome is to see such priceles heirlooms as this cropping up in all sorts of commonplace buildings and unexpected corners, having been stolen from their original resting-places, as stones would be taken from a heap. Such vandalism is enough to upset the equilibrium of the outsider, much more the art-worshipping sketcher. As Lord Lytton truly says: "So common at that day — the time of Rienzi — were these barbarous appropriations of the precious monuments of art, that the columns and domes of earlier Rome were regarded by all classes but as quarries, from which every man was free to gather the materials, whether for his cattle or his cottage, — a wantonness of outrage far greater than the Goths, to whom a later age would fain have attributed all the disgrace, and which more, perhaps, than even heavier offences, excited the classical indignation of Petrarch."

Fig. 3. From the Ducal Palace, Urbino.

Fig. 4.

Fig. 5. From the Cathedral of S. Florido, Citta de Castello.

self-effacement. But the one who desires to impress *himself* on his work is respectfully invited to accompany me to a few famous buildings in the sunny South, in order to consider on the spot, as it were, some capitals setting forth the versatility of the Renaissance, my hope being that a contemplation of these examples may impart to some the necessary courage and inspiration to go and do likewise.

The object, then, of this architectural excursion is to show how various are the details of which capitals can be composed, and how miserable, in the face of such variety, is the vocation of the mere copyist. Though this inquiry naturally takes the student at once to the period of the Renaissance, it must not be supposed that the ancients were fettered, in the designs for their capitals, to the five orders. As I have hinted, we may first pause for a few minutes at Rome, and there it is at once apparent that the Romans were particularly free in their manipulation of the Greek series of forms. For instance, their composite capital showed a determination not to be bound by the academical copy which came from Corinth. And even the composite which the Romans created was further enriched or altered to suit special circumstances. The first sketch to which I draw attention is a beautiful example of this. As a basis we get the genuine composite — the massive Ionic volutes being introduced instead of the somewhat weak tendril-shaped volute — but in the centre a finely-modelled figure, almost worthy of Michael Angelo, appears. And why? Because this noble capital was one of those adorning the columns surrounding the baths of Caracalla; and what "finishing touch" could be more appropriate than the figure of the bather preparing for his plunge? How few modern bathing-establishments have capitals of similar artistic taste and fitness. Alas! none will compare with the magnificence of the Thermæ of Caracalla or Antoninianæ, with its numerous statues, which included such treasures as the Farnese Bull, Hercules and Flora at Naples, and

Happily, this dishonest state of things does not exist now, for the Italian Government jealously guards every such relic of antiquity. Indeed, Young Italy may now sing with Rienzi, though, at present, in not too blatant a strain:—

> "The *Soul of the Past*, again
> To its ancient home,
> In the hearts of Rome,
> Hath come to resume its reign!"

Speaking of these stones of Old Rome, some may urge that nearly all the *details* of the Italian Renaissance can similarly be traced among the remains of the Roman Forum on the Palatine Hill, or among the ruins of the Baths of Caracalla; but one might, with equal reason, contend that the pictures of Michael Angelo showed no advance on those of Cimabue, because the same lineaments and muscles were portrayed. The capitals in the following series, meagrely as they represent the wealth of a subsequent period, will be sufficient to show how, eventually, the dry bones were clothed afresh with vitality. Some critics imagine that the Renaissance is merely an imitative style because it sought its inspiration in the work of the ancient Greeks and Romans, but such entirely fail to understand the new spirit, which, while awakening men to an appreciation of the romance and beauty of the ancient world, also imparted to them a sense of their own individual freedom of thought and design. The beginnings of this revival are noticeable even before the times of Fillippo Brunelleschi (1377–1446), but he was unquestionably the architect who gave the new style "a local habitation and a name." It is a deeply-interesting story, which tells how he sustained defeat, at the hands of Ghiberti, over the celebrated Baptistery-gates competition, and went along with Donatello to try his luck in Rome, and more especially to study specimens of the antique which were then being excavated.

Donatello — or to give his name correctly, Donato di Niccolò di Betti Bardi — rather than Brunelleschi, claims our attention just now, for he was one of the earliest of the masters who re-dressed the Classic after the courageous manner which is shown in capital No. 2. Tourists in Italy are apt to be led away by the lions of the land, the great architectural works of Brunelleschi, Bramante, or Michael Angelo, and overlook some of the smaller towns and examples. Such a method of viewing is something like enjoying a grand landscape in its entirety, and foolishly remaining oblivious to the grasses, leaves and flowers which go to make it up. The vast domain of decorative sculpture is full of flowers of thought, whose beauty appeals not only to the architect, but to every student of decorative art. Thus it is that the most delightful lessons can be derived from isolated works in metal, stone, stucco, inlaid (intarsia) or carved wood, which are considered by some as outside the proper range of architecture. How many men who are fairly good in working out the broad lines of a façade, or conceiving a sky-line, fail ignominiously in matters of detail?

But to return to Donatello. He was famous for introducing into his work a naturalistic style which, while erring on the side of harshness, was full of life and character. This capital (Figure 2) from the cathedral of the little town of Prato illustrates this remark perfectly. How he has crowded into this one effort Cupid on Cupid and figure on figure. Why, even the front view of the capital reveals nine figures, large and small, in addition to the bust of the Cupid at the top forming the centrepiece. Just think of it — nine figures in a single capital! Nowadays we consider ourselves lucky if we get a single good head or mask in such a position, much less a figure. Thus it was that these early Renaissance workers seemed to bubble over, so to speak, with genius. Like the flowering of an exotic, they burst forth with a prodigality which was so bewildering in its brilliancy, and likely to be judged in less prolific times as too profuse. But let those purists who would throw stones at Donatello for his ornateness go to S. Antonio at Padua, or study his reliefs on the two pulpits in S. Lorenzo at Florence. Further, let them reverently study his Peter and Mark in the Museo Nazionale of the same city. The latter are in bronze, as is also this capital which adorns the cathedral at Prato, a place rich in examples from the artists of the early Renaissance — Donatello, Michelozzo and Andrea della Robbia. I have purposely placed this first because it represents that liberty of treatment, the admiration and cultivation of which are the main objects of this imaginary sketching tour. Those who understand the difficulties of working in bronze will most appreciate the *technique* of this effort. Not a few of those Italian bronzes put the best of modern efforts "on their mettle." Some may perhaps think this remark to be over-praise. If so, let such gaze on Donatello's famous Victorious David in Il Bargello, and I will repeat in their presence Macaulay's lines:

> "And *he* made a molten image
> And set it up on high;
> And there it stands unto this day,
> To witness if I lie."

Taking Donatello's capital as indicating the beginnings of this great resurrection of art — he died in 1466 — we must now borrow from a beautiful building which was erected two years after his death in the city of Urbino, the place claiming the immortal Raphael as a son. I refer to the much-admired Ducal Palace erected there by the famous Federigo Montefeltro. Capitals, or rather brackets, Nos. 3 and 4, are samples of many others put there by Francesco di Giorgio, of Siena, and Ambrosio Baroccio, an ancestor of the painter. Herein we find a marked contrast to Donatello's prolific effort. In No. 3 the designer confines himself to simple Grecian details, the rams from a sacrificial altar, etc., but he disposes of them in a new way, and the result is a bracket of marked restraint and quiet beauty. May I pause here to suggest to the modern designer who would follow on these lines, and yet not stultify himself as a mere copyist, how it is to be done? Let two other animals equally graceful take the place of the rams — say, rabbits or dogs — greyhounds or any other breed — some local leaves be substituted for the acanthus and honeysuckle, and the thing is individualized without being ostracized as "outside the range of the styles." In No. 4 there is more departure from strict Classic lines shown. The curious twist of the eel-like scrolls at the corners, the placing of the facial rosette, the hanging of the husk festoons, all show independence of thought. The introduction of the trident and the dolphins in the tail of the bracket, and the hanging of a couple of shields by the ribbon are decidedly happy, the latter suggesting the action of Icilius when he

> "Sprang upon that column, by many a minstrel sung,
> Whereon three mouldering helmets, three rusty swords, are hung."

Here again there is a wealth of suggestion to the designer anxious for change. Anything, from fishes to flowers, served as effective detail for this designer of Urbino.

Fig. 6. From Sta. Maria Maggiore, Spello. Fig. 7.

Fig. 8. From the Palazzo Vecchio, Florence.

The next sample, No. 5, is one of several in the Cathedral of S. Florido at Citta de Castello, in the upper valley of the Tiber. The building, an admirable specimen of the Renaissance style, was begun in 1482 and completed in 1522. Bramante is generally credited with being the builder, but the records mention Lombardo as the architect. It is interesting to notice that if any family achieved eminence at this period it generally spent the greater part of its resources in building. The history of the Vitelli, the lords and masters of Citta de Castello, show how vehement was the rage for bricks and mortar, or rather marble and stone, for they erected and embellished no less than four palaces to commemorate their name and culture. It is a pity that our modern princes, merchant and otherwise, are not more moved to leave behind them such "footprints on the sands of time." The capital which causes our present detour to this out-of-the-way Perugian town is remarkable for its simplicity. Its details are within the grasp of any carver who has mastered the acanthus leaf, and yet it is not commonplace or strictly academical. It shows that by taking a little trouble, ordinary stock materials can be regrouped with the happiest of results. Those, then, who shrink from attempting the task of evolving a capital filled with figures, like that of Donatello, may run upon the easier lines of this simpler effort.

To brace up the faculties of any who imagine that the designing of capitals begins and ends with the refined sort of thing figured in No. 5, I shall now proceed to the little town of Spello in order to study some lively capitals which there adorn the Cathedral of Sta. Maria Maggiore. They are shown in sketches Nos. 6 and 7, and exhibit to perfection the happy liberty in which the early Renaissance artists rejoiced. While adhering to the main lines of the Classic, they seized anything — masks, grotesque heads, festoons and a thousand other things — to secure effect. In No. 6 we get masks of various mien, and in No. 7 heads which might answer for court-jesters or chimerical creatures. These capitals are not perhaps "pretty," but

they are full of life, and in that respect stand head-and-shoulders above many timid compeers. A feature which is distinctly Renaissance in character occurs on these columns, and that is the elaborate decoration of the shafts. In this respect the Italians of the fifteenth and sixteenth centuries made a new departure. Discarding the simplicity of Classic orders, they produced shafts of great beauty, and the two distinct types of treatment which are here shown will reveal the early form in which such florid ideas developed. The choir in the Cathedral at Spello contains a magnificent canopy in the early Renaissance style which is full of suggestion to the student of this epoch. These two examples will indicate the inspiring character of the work which is to be found in this corner of the sunny South.

Fig. 9. From S. Spirito, Florence.

One may pick up all sorts of captivating little bits while wandering in the byways of Italy; but, after all, Florence is the centre of most interest to those who care to follow up the subject in hand. Both as regards intellectual and artistic life, the great art city of Tuscany succeeded during the Middle Ages in eclipsing even Rome itself. While the Imperial city seemed ever affected by the dead hand of Cæsar, its rival on the Arno rose, Phœnix-like, from the ashes of former greatness, and exhibited a vitality which has never been excelled in the world's history. As Leo charmingly puts it, "Here everything betrays the work of generation after generation of ingenious men. Like a water-lily rising on the mirror of the lake, so rests on this lovely ground the still more lovely Florence, with its everlasting works and its inexhaustible riches. From the bold, airy tower of the palace, rising like a slender mast, to Brunelleschi's wondrous dome of the Cathedral; from the old house of the Spini to the Pitti Palace, the most imposing the world has ever seen; from the garden of the Franciscan Convent to the beautiful environs of the Cascine — all are full of incomparable grace. Each street of Florence contains a world of art; the walls of the city are the calyx containing the fairest flowers of the human mind; and this is not the richest gem in the diadem with which the Italian people have adorned the earth."

Fig. 10. From S. Spirito, Florence.

We will to Florence, then, for the rest of our specimen capitals, and, as in duty bound, first call at the Palazzo Vecchio, to whose "bold airy tower" Leo so poetically alludes. It was at one time the residence of Cosimo I, but now used as a town-hall and museum, and contains a number of halls decorated by various eminent Italian artists. One of them, perhaps the most famous, is enriched with beautiful marble doorposts by Benedetto da Magano, and sketch No. 8 shows one of them. The same gifted artist executed the intarsias of Dante and Petrarch, which are so generally admired. This example is mainly useful in the present series by way of showing that an episode may be figuratively set out on the face of a capital without detracting from its beauty or disturbing its proportion. Here Cupid is ministering to the wants of Venus, the whole scene being fitly confined within the limits of a shell. The upper part of the capital, while running much on Classic lines, shows a feeling distinctly its own. Notice the floral terminals of the inside ends of the volutes; how nicely they fill in the interstices. Benedetto da Magano could certainly handle ornament as well as figures.

The tour in search of suggestive capitals may well and pleasantly be brought to a conclusion by considering four specimens from the pencil of that architect in whom the beauty of the Renaissance has been truly said to have culminated. I refer to Jacopo Tatti, more commonly known as Sansovino, whose life's work was done between the years 1479 and 1570. This architect must not be confused with Andrea Sansovino (1460–1529), the sculptor of the marvellous groups of Christ and the Baptist in the Baptistery at Florence, and other fine works at Rome. Jacopo Tatti was a Florentine by birth, and had the good fortune to receive his education in that city during one of its most art-inspiring periods. Like most young Italians possessing genius, he had a roving temperament, and so we find him working at Rome, and eventually at Venice, which city will owe him a lasting debt of gratitude for the "Stones" which he left there. It was not until I had an opportunity of gazing upon the beautiful façade of the old library of St. Mark's, and the masterly details of the Giants' Staircase at the Doge's Palace, Venice, that I at all understood the wonderful genius of this Sansovino, or the part which he occupies in this culminating period of the Renaissance. Bramante's epoch of what may be described as "symmetrical construction" was succeeded by a style in which the chief aim was general effect. Harmony among the individual members began to be neglected, and the eye was arrested by boldness of construction and striking contrasts. As I have tried to make clear in the study of these capitals, new modes of expression were borrowed from antiquity, the axioms of which had formerly been applied in a manner which was unsympathetic. This culminating period had for its exponents Raphael, Baldassare Peruzzi, the younger Antonio de Sangallo, of Rome, Michael San Micheli, of Verona, Michael Angelo, and last, but not least, Jacopo Tatti Sansovino, who was the designer of the four Florentine capitals to which these prefatory notes are intended to draw attention.

Fig. 11. From S. Spirito, Florence.

Fig. 12. From S. Spirito, Florence.

The Church of S. Spirito at Florence, where these capitals are to be found, has the fame which comes of being originally designed by Filippo Brunelleschi. It is one of the most attractive churches in the city, mainly on account of the noble proportions of its interior, which is borne by thirty-one Corinthian columns and four pillars.

But, to the ornamentist, there is nothing in the church which is likely to prove of more interest than these two Sansovino studies. It will be observed that these are all antæ or pilaster capitals, and as such they are likely to be of special service to wood-workers, as well as architects. It is not often that the full column appears in wood, while the flat or fluted pilaster is in constant requisition. No. 9 of these S. Spirito studies is chiefly noticeable on account of the masks which finish the corners. Here was a striking departure in such a case, and one which required a good deal of courage. Perhaps the Classic authority that Sansovino had in his mind when he designed it was the Corinthian capital of the temple of Apollo Didymæus, at Miletus. The idea of placing a vase in the centre of the capital is common enough, but there is rare artistic judgment in showing it "on the round," as the article would appear if thus placed.

Sketch No. 10 shows another application of the mask. This time it occupies a central position, and is crowned with a profusion of the "kindly fruits of the earth." The decorative placing of the wheat-ears and the crowning of the whole by the acorn are points which should not be passed over by the thoughtful observer. Further, the way in which the beard is made to blossom, so to speak, into the acanthus scrolls at the sides is delightfully artistic. In both these examples Sansovino has deemed it necessary to introduce volutes to finish the top-corners of his capitals, and the way in which they are pulled out from the moulding is not altogether graceful. In Sketches 11 and 12 he abandons that remnant of the Classic, and boldly uses detail of his own selection. No. 11 is a striking instance of this. The pair of athletes springing from the corners give a spirit and contour to the capital which are seldom met with. The decorated band on which the figures stand, with its shells and dolphins, is another feature showing liberty and originality. The mystic chimerical conception in the centre is more queer-looking than captivating, but the whole thing suggests a hundred ways in which the designs of our capitals can be refreshingly varied. It does not follow that the modern artist need put Florentine athletes into his design. Let him, if he so pleases, put a couple of cricketers, or footballers, and fill-in the interstices with the implements of the play, surmounting his capital with the prize-cup which the players are supposed to have won. Or, if the capital be for a theatrical purpose, let a couple of Harlequins hold the corners, while Columbine graces the centre. Anything to get away from the slavish copyism which is the bane of so many buildings.

In the last of the Sansovino capitals, the ever-favorite subject, the infant form, is selected as the *motif*. The graceful pose of the little fellow, the way in which he is supported by cornucopiæ, and the balance of the entire thing, leave nothing to be desired. In the whole range of the figure subjects there is no study more profitable to the student than that of Master Cupid. He will invest many otherwise lifeless bits of decoration with a charm which no amount of inanimate ornament can impart.

The summary of the suggestions which these capitals have to make to the student is: "Anything in the world of Nature can be pressed into your service." In this brief series of a dozen capitals — just a few from the many thousands which adorn the churches and palaces of Italy — we have figures ranging from the Roman bather at the baths of Caracalla to the fruit-surrounded Cupid of Sansovino. We have animals, birds and fishes; leaves, fruit and flowers; masks, armor, and pottery; things as diverse in nature as can be imagined, but all made harmonious and beautiful under the influence of the life-inspiring Renaissance. What should we have heard of Sansovino, or any one else of the noble Florentine school, if they had spent their lives in merely copying the detail — admirable as it is — of the ancients? Certainly very little. Then let the ornament of each epoch, even if founded on much the same foundation-lines, tell its own tale to the lasting credit of those who, like Sansovino, are determined to speak for themselves in the art which they make their own.

There is just another point on which I should like to animadvert before leaving the consideration of these Sansovino capitals, and it has to do with the public more than the student. It is clear, I think, from these examples thus brought, in a fragmentary way, from sundry towns in Italy, that the patient student may possibly become a master-ornamentist if he can only study on the same lines, and catch a similar spirit, as his Italian predecessors. It will occur to some of my readers to sigh and inquire: "What chance has the needy art-enthusiast of these times to do any such thing?" It may be admitted at once that, unless he is greatly aided in some way or other, he is, to say the least, heavily handicapped. Then how shall he be assisted in his art-career? Simply in this way: Let any place aspiring to the style and title of town or city set about establishing its school of art, amply supplied with the best models. Let it, if it be possible, have a pleasant garden adjoining, with a colonnade, S. Marco-like, running round, so that study can proceed out-of-doors in the summer-time; and let the alcoves and niches be redolent with flowers, and filled with casts of Classical sculpture and statuary. To such an elysium invite a number of picked art-workers — young men and women who "mean it" — to gather and revel over precious lines of antiquity, and vie with each other in the pleasant task of redressing old forms with new beauties. A truly pleasant picture; but who is to pay for it? Let it be paid for out of the rates, and hold any place which will not provide such an art-school up to public opprobrium. "What a Quixotic idea!" the majority of my readers will exclaim. "No town-council or rate-payers would hear of it." Then let us inquire how they managed in old Florence during the days of young Sansovino. *Experientia docet*, said the old Romans. Thanks to the help of that prince among art-patrons, Lorenzo de' Medici, the aspiring Florentine could attend art-gardens expressly provided by his ruler, and there, among the choicest antiques the world has ever seen, study and model to his heart's content under proper tutors. By thus surrounding these young men with the remains of the ancient masters, Lorenzo succeeded in educating their views beyond the forms of common life up to that ideal beauty which alone distinguishes works of art from mere mechanical productions. And best of all, these rare privileges were not confined to those who could afford the luxury of spending time over unproductive art-study — but, will it be believed? — when students were too poor to lose time, Lorenzo de' Medici *not only paid them competent stipends* while they attended to their studies, but offered considerable money-prizes as incentives to proficiency! What has your cheese-paring town-councillor to say to that? Wise is the modern municipality which takes a lesson out of the history of the Medici, and deals in the same large-hearted way with the questions of art and technical training for its sons. Look at the harvest of genius Florence reaped from the seed thus judiciously sown by the far-seeing Lorenzo. If only more of our machine-made wealth were spent in paying for earthly paradises after the glorious model of Lorenzo de' Medici next to the monastery of S. Marco, we should not give cause to those croakers who are constantly protesting that art died in Italy some centuries ago. Let our young men have the chance, and I believe that if we are to see no more Raphaels or Michael Angelos, we may manage to raise some modern Sansovinos.

BUILDING LAW.

FUTILITY OF CERTAIN COMMON CLAUSES IN BUILDING CONTRACTS.

THE case of Bartlett *vs.* Stanchfield, just decided by the Supreme Court of Massachusetts, shows the uselessness of that very common clause in building contracts prohibiting all claims for extras unless ordered in writing. The contract involved in this case contained the following clause:

"And it is further agreed that, should the owner, during the progress of said construction, request any alteration of, addition to, deviation from or omissions concerning the construction of said houses, as set forth herein and in said plans and specifications, the same shall be made by the said Bartlett, and shall in no way affect this agreement, but shall be added or deducted from the amount thereof by a fair and reasonable valuation, and that no charge shall be made for extra work or materials unless the same is ordered in writing and the price thereof agreed upon."

The orders for extras were given by word-of-mouth, and not in writing. The Court held that such orders were binding on the owner, notwithstanding the terms of the agreement; and Mr. Justice Holmes, in delivering the opinion of the Court, uses the following language:

"Attempts of parties to tie up by contract their freedom of dealing with each other are futile. The contract is a fact to be taken into account in interpreting the subsequent conduct of the plaintiff and defendant, no doubt. But it cannot be assumed as matter-of-law that the contract governed all that was done until it was renounced in so many words, because the parties had a right to renounce it in any way and by any mode of expression they saw fit. They could substitute a new oral contract by conduct and intimation, as well as by express words. In deciding whether they had waived the terms of the written contract, the jury had a right to assume that both parties remembered it and knew its legal meaning. On that assumption, the question of waiver was a question what the plaintiff fairly might have understood to be the meaning of the defendant's conduct. If the plaintiff had a right to understand that the defendant expressed a consent to be liable, irrespective of the written contract, and furnished the work and materials on that understanding, the defendant is bound. — *West* v. *Platt*, 127 Mass. 367, 372; *O'Donnell* v. *Clinton*, 145 Mass. 461, 463."

SOCIETIES.

BOSTON ARCHITECTURAL CLUB.

THE Boston Architectural Club held a conversazione, Thursday evening the 28th, to discuss the Exhibition of Stained-glass and Tile Work which has been held in the rooms of the Club during the past ten days. The attendance was quite large and a great deal of interest was manifested. Mr. C. Howard Walker presented a very able and clear-sighted consideration of the subject of stained-glass, touching somewhat upon the history of the art and the

processes of manufacture, illustrating the gradual development in its use from the Byzantine mosaics to its perfected application in the Gothic cathedrals, noting the modern and more miscellaneous treatpointing the moral to the subject by reference to a few of the excelment of stained-glass, glass-mosaics, enamels, etc., and, indirectly lent examples on exhibition.

Mr. J. G. Low was expected to address the Club on the subject of tile-work, but was prevented by sickness from being present. Mr. A. E. Streeter, who is associated with him in the Chelsea Tile Works appeared in his stead, and gave a very interesting account of Mr. Low's early attempts at the manufacture of artistic tiles and pottery, the difficulties which he encountered and some of the means by which he had brought his work to so high a standard. Prof. E. S. Morse also spoke upon the subject of tile-work, urging the necessity for more men in this country who would do just what the Lows have done, bringing an artistic training and thorough good taste to bear upon a subject which has never yet received sufficient attention with us.

The Club has every reason to congratulate itself at present. The membership is large and constantly growing by the addition of some of the best men, both in the profession and in the allied arts. There are no debts, a very general enthusiasm, full classes for study, and every indication that the organization will accomplish all that its friends hope for it.

COMMUNICATIONS

THE PRESCOTT DOOR-HANGER.

Chicago, Ill., March 12, 1889.

To the Editors of the American Architect:—

Dear Sirs, — In looking over the files of your paper we have chanced to notice in the article on "Builders' Hardware," of November 10th, the following sentence in reference to the "Prescott Sliding-Door Hanger." "The only objection to their use for sliding-doors is that they have to be put on before the plastering is applied and they are somewhat less easily adjusted." We have used a large number of these hangers because the very opposite of this is true in regard to them.

The greatest difficulty with the running of sliding-doors is not in the hanger but in the track. Almost any hanger in the market will run well if the track is perfect. With the settling of the building, and shrinkage of woodwork, added to poor workmanship, the double tracks usually applied for parlor-doors are very apt to get out of adjustment, and then the best hanger will not work and there is no remedy except to tear off the plastering and reset the track.

After trying one form and another of hanger we concluded that the only sure remedy was to abolish the track altogether. With the Prescott hanger there is no track. The hanger is applied to the jamb on one side of the sliding-door after the plastering is completed and the interior finish in place.

The hanger is screwed to the jamb and covered by a wide stop. It can be adjusted by taking off the stop and altering the set of the hanger. To be sure this is a more difficult operation than adjusting the set of the ordinary hangers, but when the Prescott hanger is adjusted, everything is adjusted, while with the wheel-hangers the fault is most likely to be with the track and no adjustment of the hanger itself will help matters.

The Prescott hanger is especially useful therefore with very narrow and high doors which are almost certain to give trouble when hung in the ordinary manner, because the two hangers on the top of the door must be set so close together that a slight inequality in the track will throw the bottom of the door out of adjustment and a sudden push at the bottom of the door will cause the wheels to jump. With the Prescott hanger the door can never jump no matter how the pressure may be applied.

Very respectfully, Patton & Fisher.

THE OWNERSHIP OF DRAWINGS.

Savannah, Ga., March 26, 1889.

To the Editors of the American Architect:—

Dear Sirs, — I write to ask the opinion of your law editor in regard to the following case which has just occurred in my practice, and being the first of its kind in my experience, greatly surprised me.

Mr. G —— having entrusted me with the duty of preparing plans and specifications for a residence, which I was also to superintend, everything was prepared, and bids received, and the contract awarded last Wednesday. Meantime the form of contract was to be drawn up by me, and to be signed by owner and contractor when ready. Yesterday evening he came to the office to sign the document, but on reading it over, remarked that it was all right with the exception of one thing. Asking what the objectionable thing was, he replied that he objected to the clause referring to the drawings which read, "And it is further mutually agreed that all drawings and specifications are and remain the property of the architect," and refused to sign unless this was scratched out, or changed to read, "are and remain the property of G." I explained that it was the custom the world over for the architect to retain his drawings, as they were but a means to an end, his tools, as it were to build the house, the same as the carpenters' tools, etc. But he replied that he was to pay for them and wanted them, had consulted a lawyer, who told him that they were his, and demanded his rights. I showed him rolls of drawings, the accumulation of ten years' practice, in the office, of works built and paid for, but it was no use, what he paid for was his.

Now I wish to know as a matter-of-law-and-fact, is he right, and would the Courts sustain his claim for the drawings, after the completion of his house. Very truly yours, J. J.

[If the owner signs a contract providing that the drawings are to be the property of the architect, he of course cannot claim them. If nothing is said about this point in the agreement between him and the architect, he can probably, as the law now stands, demand them of the architect and get them. The leading case on the subject is the celebrated one where the British Government demanded the plans of the Westminister Palace from the heirs of Sir Charles Barry. The Barry family fought bravely for professional rights, but, after incurring enormous expenses were defeated by the decision of the highest Court, and the decision has ever since served as a precedent. Among architects it has been universally denounced as unjust, and the exclamation by which the Lord Chief Justice is said to have summed up his opinion — that he "would not hear of it, that a man should not have what he had paid for," is certainly the worst example of *petitio principii* recorded in legal history, but, with a few exceptions, English and American judges have always followed it, and no individual architect can afford to struggle against the mass of precedents which would be opposed to him. If the owner really wishes to preserve the drawings, and thinks he can do so better than the architect, it is cheaper to trace them than to fight with him; if he is one of the kind that demand the surrender of the drawings with a view to cheating the architect out of a part of his pay, the most profitable course is to have nothing to do with him. — Eds. American Architect.]

NOTES AND CLIPPINGS

Bellite Experiments. — A series of experiments were successfully carried out recently at Chadwell Heath, Essex, with a new explosive, bellite. This explosive is the invention of Mr. Carl Lamm of Sweden, in which country it is well in use both for mining and military purposes. Bellite is composed of di-nitro-benzole and nitrate of ammonia blended together in certain proportions and under special conditions. The experiments, which were conducted by Mr. C. Napier Hake, F. I. C., and Mr. Perry F. Nursey, C. E., were commenced by exploding 1½ pounds of bellite under water, a fine column of spray being projected to a great height. Half a cartridge of bellite was then placed on a coat are, and was sir. y roasted away. The corresponding half was then exploded by means of a capped fuse on a piece of three-eighths-inch boiler plate with good effect. An iron weight of 120 pounds was then dropped from a height of 18 feet onto some naked cartridges, which were crushed but not exploded. The crushed cartridges were afterwards exploded on a piece of double-headed rail, out of which was cut a short length. In a hole in the earth one pound of bellite cartridges was mixed with one pound of blasting gunpowder, and the powder was fired, the explosion throwing the bellite cartridges out of the pit in a broken and partially roasted condition. A cartridge of bellite was then fired from a rifle against an iron plate, the bellite being merely smashed against the plate. Some comparative experiments made with equal quantities of dynamite and bellite exploded on iron plates showed that bellite was slightly stronger than dynamite, and that it had more of a rending than of a smashing action. As a test of its propelling power a 32-pound ball was projected from a mortar to a distance of 120 feet by a charge of one-half ounce of rifle powder, but with one-quarter ounce of bellite it covered 285 feet in its flight. The final experiment consisted in demolishing a railway. To this end a sixty-foot length of line was laid, with a double-headed rail carried in iron chairs on timber cross-sleepers. A mine containing eight pounds of bellite, placed in the earth at a depth of five feet below the railway, was exploded, demolishing the railway and forming a crater twelve feet in diameter by some six or seven feet deep. Portions of the line and sleepers were projected many feet away, and the scene was one of perfect wreckage. The experiments fully demonstrated the safety, power, and special action of bellite. — *London Times, February* 8.

Wilmerding, Pa., a Model Town. — George Westinghouse, proprietor of the air-brake patent, which made him wealthy and famous, proposes to build a town for his employés at Wilmerding, near Allegheny, Pa. He has bought 600 acres of land, and will spend $3,000,000 in improving it. A new machine-shop, costing $1,000,000, will give employment to 5,000 hands, and turn out five times the work done at the present mills in Allegheny. The place is to be modelled after Pullman, Ill. There are 42 plots in the town site, each containing a number of lots. One of them will accommodate a fine hotel and a handsome club-house, to be built together, and to form the most pretentious structure architecturally in the new city. Lots that are not taken by employés or others by a certain date will be built on by the company. About two hundred houses are now under way. The improvement company has bought 625 feet of frontage on the Monongahela River, near Fort Perry, to establish water-works capable of supplying 20,000,000 gallons a day. Sewers are now being laid in every street, and natural-gas will be used exclusively for fuel. — *Springfield Republican.*

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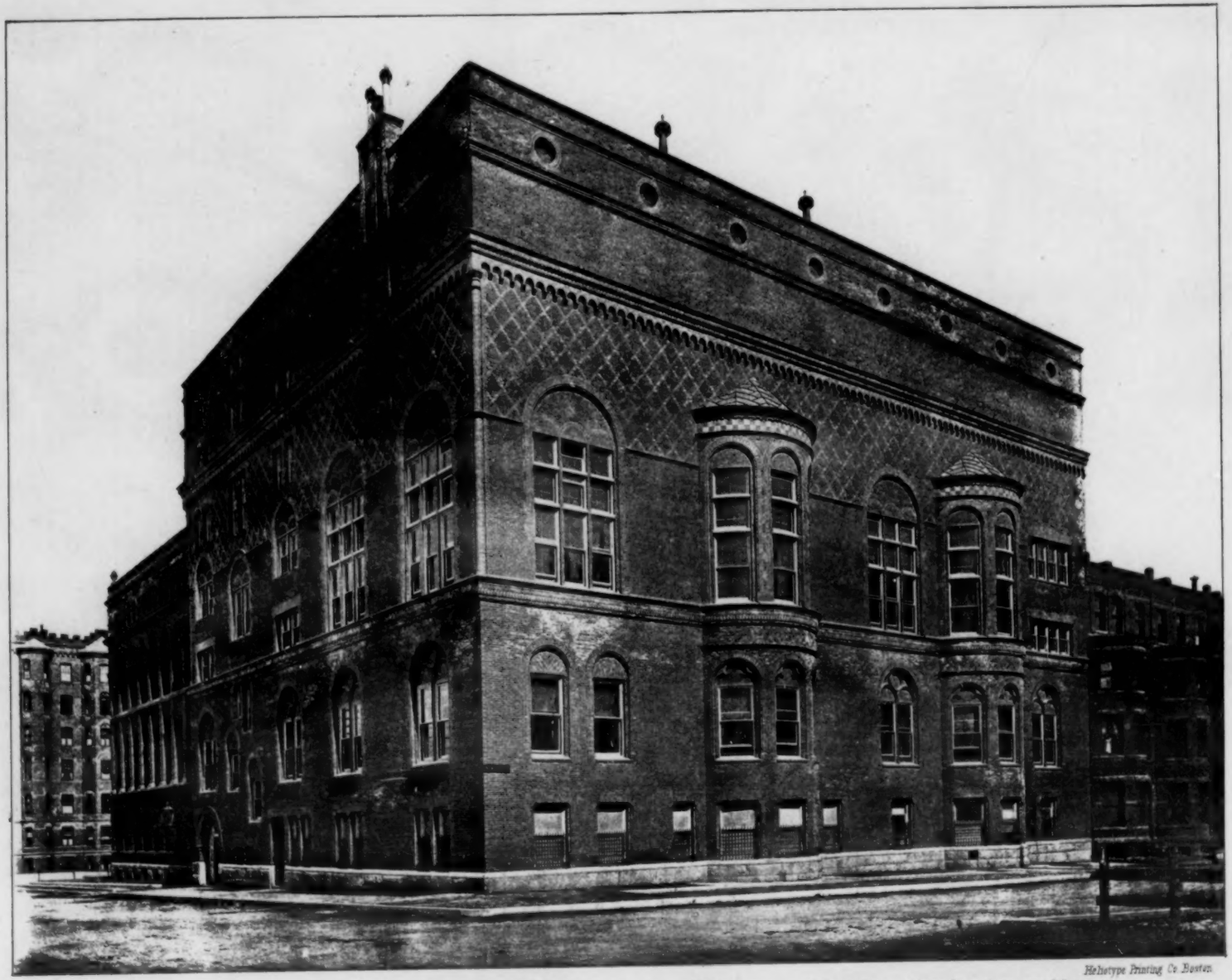

Heliotype Printing Co. Boston.

BUILDING OF THE BOSTON ATHLETIC ASSOCIATION EXETER ST BOSTON MASS

J. H. STURGIS STURGIS & CABOT SUCCESSORS ARCHITECT

American Architect and Building News, Apr. 6 1889. No. 693.

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SKETCH · OF · COUNTRY · CHURCH ·
CHAPEL & PARSONAGE ·
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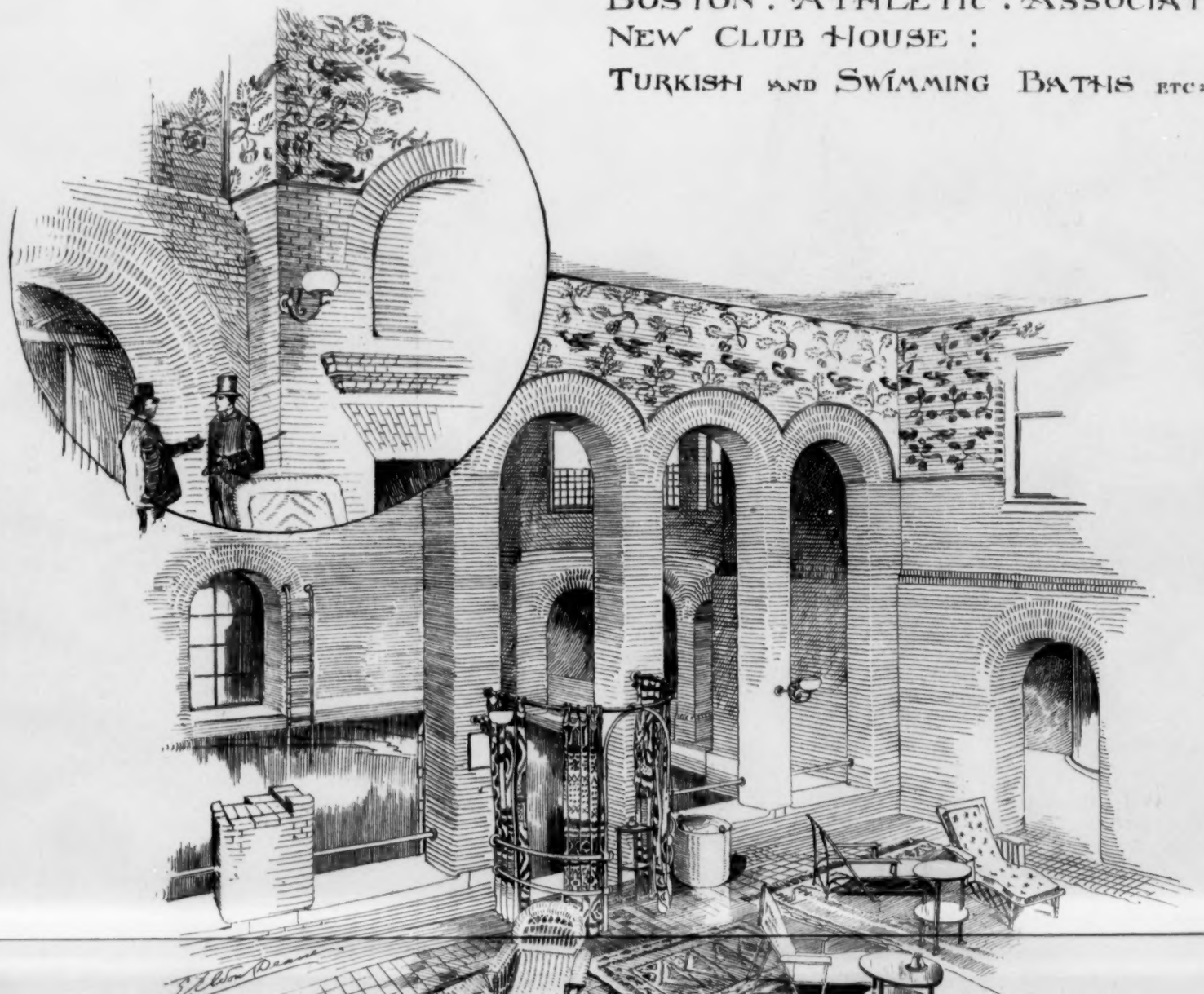
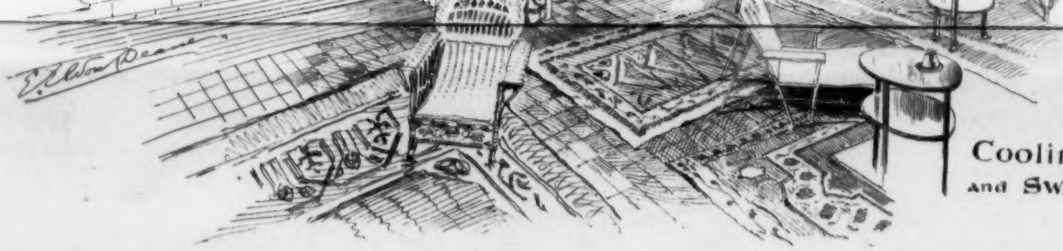
BOSTON . ATHLETIC . ASSOCIATION .
NEW CLUB HOUSE :
TURKISH AND SWIMMING BATHS ETC:





Cooling Room.
and Swimming Bath

Exit from the Hot Rooms

1st Hot Room

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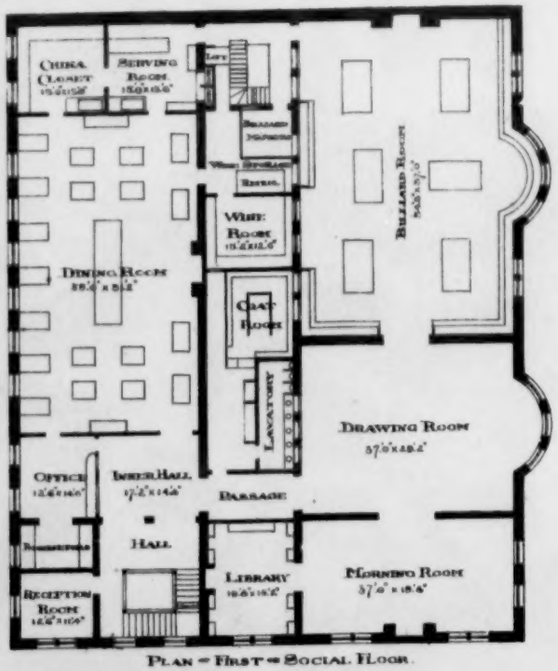
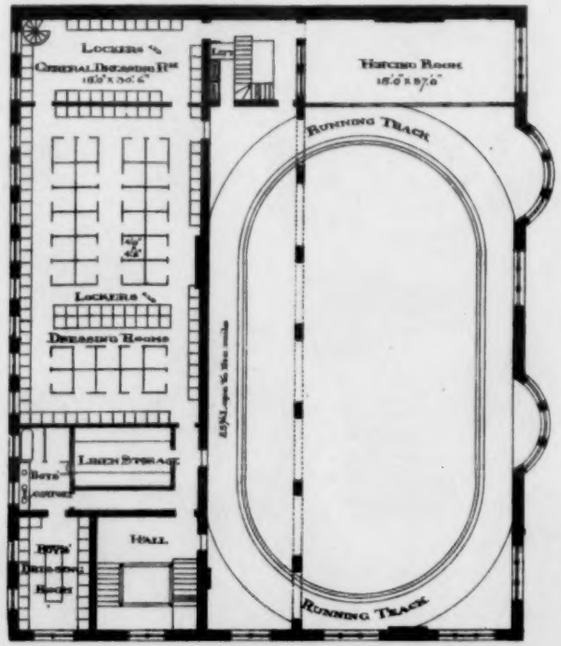
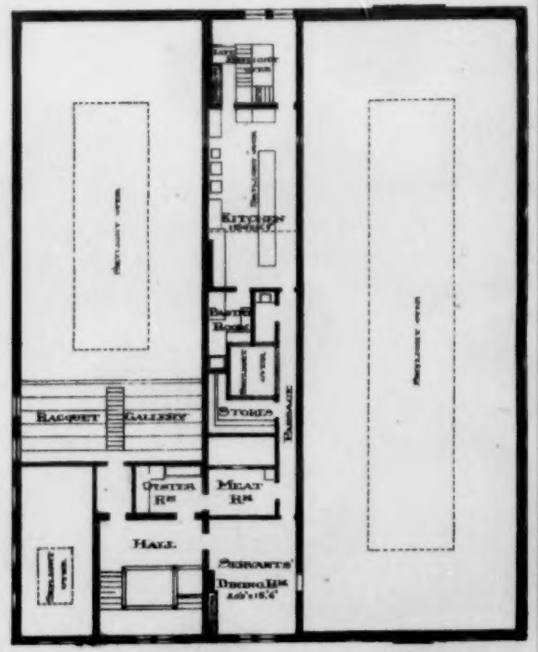


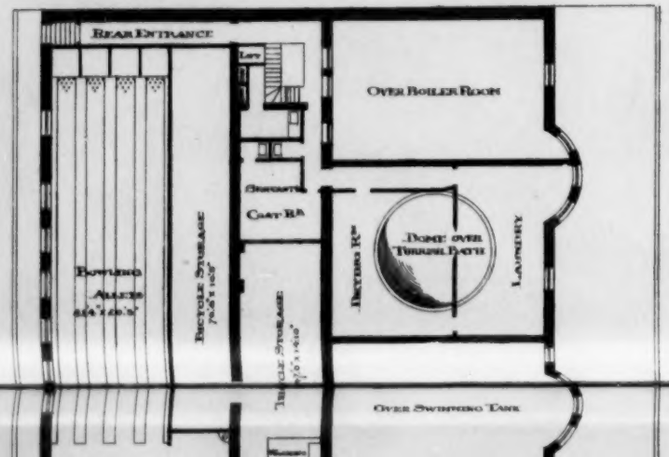
PLAN OF FIRST OR SOCIAL FLOOR.



PLAN OF SECOND FLOOR MEZZANINE.



PLAN OF SECOND MEZZANINE AND THIRD FLOOR



FLOOR PLANS

of the

BOSTON ATHLETIC ASSOCIATION

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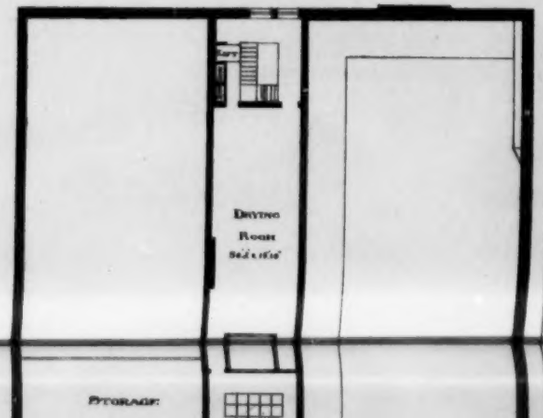

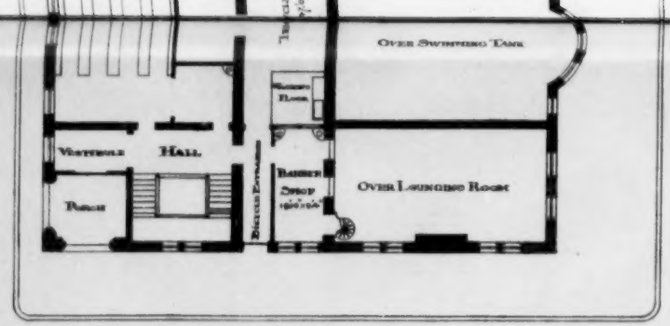

Plan of Basement Mezzanine

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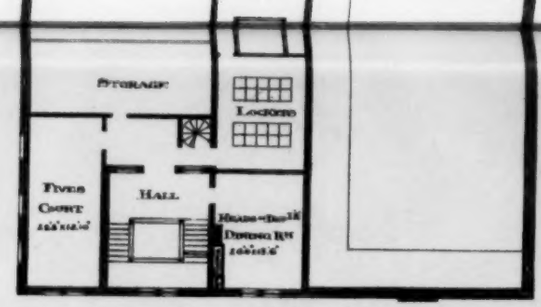
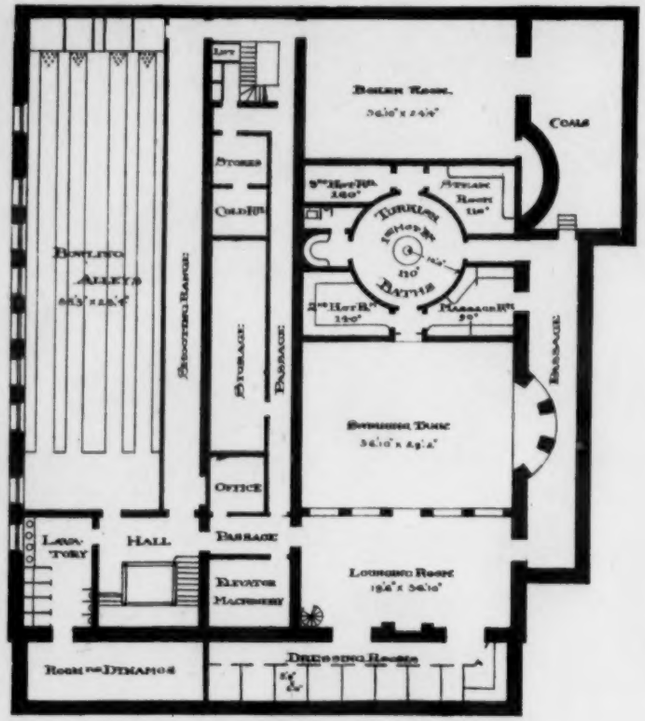
John H. Sturgis,
and
Sturgis & Cabot, Successors
Architects
1887-89

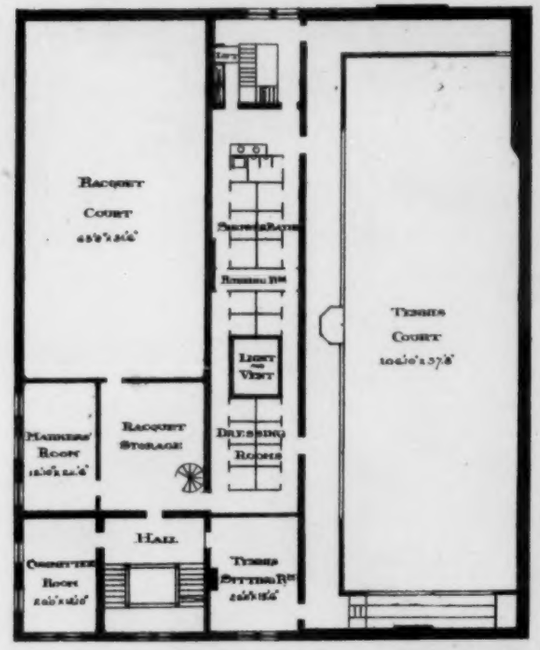


Plan of First Mezzanine over Third Floor



Plan of Basement.

Plan of Gymnasium or Second Floor.



Plan of Third or Tennis Court Floor.

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